



#5

# SEQUENCE LISTING

<110> WOLFFE, Alan P.  
COLLINGWOOD, Trevor

<120> TARGETED MODIFICATION OF CHROMATIN STRUCTURE

<130> 8325-0014 / S14-US1

<140> 09/844,508

<141> 2001-04-27

<150> 60/200,590

<151> 2000-04-28

<150> 60/228,523

<151> 2000-08-28

<160> 49

<170> PatentIn Ver. 2.0

<210> 1

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Veg 1 target  
site 3' to 5'

<400> 1

cccctccta

9

<210> 2

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Veg 1 target  
site 5' to 3'

<400> 2

ggggaggat

9

<210> 3

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Veg 1 AA  
sequence F1

<400> 3  
Thr Thr Ser Asn Leu Arg Arg  
1 5

<210> 4  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Veg 1 AA  
sequence F2

<400> 4  
Arg Ser Ser Asn Leu Gln Arg  
1 5

<210> 5  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Veg 1 AA  
sequence F3

<400> 5  
Arg Ser Asp His Leu Ser Arg  
1 5

<210> 6  
<211> 9  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Veg 3a target  
site

<400> 6  
gcggaggct

9

<210> 7  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Veg 3a AA  
sequence F1

<400> 7  
Gln Ser Ser Asp Leu Gln Arg  
1 5

<210> 8  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Veg 3a AA  
sequence F2

<400> 8  
Arg Ser Ser Asn Leu Gln Arg  
1 5

<210> 9  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Veg 3a AA  
sequence F3

<400> 9  
Arg Ser Asp Glu Leu Ser Arg  
1 5

<210> 10  
<211> 298  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Veg1  
nucleotide sequence

<400> 10  
ggtaccata cctggcaaga agaagcagca catctgccac atccagggct gtggtaaagt 60  
ttacggcaca acctcaaata tgcgtcgtca cctgcgtggt cacaccggcg agaggccttt 120  
catgtgtacc tggctctact gtggtaaacg cttcaccgtg tcgtcaaacc tgcagcgtca 180  
caagcgtacc cacaccggtg agaagaaatt tgcttgcccg gagtgtccga agcgcttcat 240  
gcgtagtgac cacctgtccc gtcacatcaa gaccaccag aataagaagg gtggatcc 298

<210> 11  
<211> 99  
<212> PRT  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Veg1 amino acid sequence

<400> 11

Val Pro Ile Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly  
1 5 10 15

Cys Gly Lys Val Tyr Gly Thr Thr Ser Asn Leu Arg Arg His Leu Arg  
20 25 30

Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly  
35 40 45

Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr His  
50 55 60

Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met  
65 70 75 80

Arg Ser Asp His Leu Ser Arg His Ile Lys Thr His Gln Asn Lys Lys  
85 90 95

Gly Gly Ser

<210> 12

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: duplex oligonucleotide binding target 5'-3'

<400> 12

catgcatagc ggggaggatc gccatcgat

29

<210> 13

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: NLS derived SV40 large T-antigen

<400> 13

Met Ala Pro Lys Lys Lys Arg Lys Val Gly Ile His Gly Val  
1 5 10

<210> 14

<211> 8  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
double-stranded oligonucleotide encoding a FLAG  
epitope

<400> 14  
Asp Tyr Lys Asp Asp Asp Asp Lys  
1 5

<210> 15  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: target site  
for human VEGF-A

<400> 15  
ggggaggatc gcggaggct 19

<210> 16  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: linker  
sequence

<400> 16  
Asp Gly Gly Gly Ser  
1 5

<210> 17  
<211> 298  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Veg3a  
nucleotide sequence

<400> 17  
ggtaccata cctggcaaga agaagcagca catctgccac atccagggt gtggtaaagt 60  
ttacggccag tctccgacc tgcagcgtca cctgcgctgg cacaccggcg agaggccttt 120  
catgtgtacc tggctctact gtggtaaacg cttcaccgt tcgtcaaacc tacagaggca 180  
caagcgtaca cacaccggtg agaagaaatt tgcttgcccg gagtgtccga agcgcttcat 240

gcgaagtgcac gagctgtcac gacatatcaa gacccaccag aacaagaagg gtggatcc 298

<210> 18

<211> 99

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Veg3a amino acid sequence

<400> 18

Val Pro Ile Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly  
1 5 10 15

Cys Gly Lys Val Tyr Gly Gln Ser Ser Asp Leu Gln Arg His Leu Arg  
20 25 30

Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly  
35 40 45

Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr His  
50 55 60

Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met  
65 70 75 80

Arg Ser Asp Glu Leu Ser Arg His Ile Lys Thr His Gln Asn Lys Lys  
85 90 95

Gly Gly Ser

<210> 19

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Veg3a DNA target site

<400> 19

catgcatatc gcggaggctt ggcacgat

29

<210> 20

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer SPE7

<400> 20  
 gagcagaatt cggcaagaag aagcagcac 29  
  
 <210> 21  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: primer  
 SPEamp12  
  
 <400> 21  
 gtggtctaga cagctcgtca cttcgc 26  
  
 <210> 22  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: primer  
 SPEamp13  
  
 <400> 22  
 ggagccaagg ctgtggtaaa gtttacgg 28  
  
 <210> 23  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: primer  
 SPEamp11  
  
 <400> 23  
 ggagaagctt ggatcctcat tatccc 26  
  
 <210> 24  
 <211> 77  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: fragment  
 encoding DGGGS linker, 5' to 3'  
  
 <400> 24  
 ctagacacat caaaacccac cagaacaaga aagacggcgg tggcagcggc aaaaagaaac 60  
 agcacatatg tcacatc 77  
  
 <210> 25  
 <211> 77

<212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: fragment  
 encoding DGGGS linker, 3' to 5'

<400> 25  
 tgtgtagttt tgggtggtct tggtctttct gccgccaccg tcgccgtttt tctttgtcgt 60  
 gtatacagtg taggttc 77

<210> 26  
 <211> 39  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: primer GB19

<400> 26  
 gccatgccgg tacccatacc tggcaagaag aagcagcac 39

<210> 27  
 <211> 33  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: primer GB10

<400> 27  
 cagatcggat ccacccttct tattctgggtg ggt 33

<210> 28  
 <211> 589  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Veg3a/1  
 nucleotide sequence

<400> 28  
 ggtaccata cctggcaaga agaagcagca catctgccac atccagggct gtggtaaagt 60  
 ttacggccag tctccgacc tgcagcgta cctgcgctgg cacaccggcg agaggccttt 120  
 catgtgtacc tggctctact gtggtaaacg cttcacacgt tcgtcaaacc tacagaggca 180  
 caagcgtaca cacacaggtg agaagaaatt tgcttgcccg gagtgtccga agcgcttcat 240  
 gcgaagtgac gagctgtcta gacacatcaa aaccaccag aacaagaaag acggcgggtg 300  
 cagcggcaaa aagaaacagc acatatgtca catccaaggc tgtggtaaag tttacggcac 360  
 aacctcaaat ctgcgtcgtc acctgcgctg gcacaccggc gagaggcctt tcatgtgtac 420  
 ctggctctac tgtggtaaac gcttcaccgg ttgcgtcaaac ctgcagcgtc acaagcgtac 480  
 ccacaccggg gagaagaaat ttgcttgccc ggagtgtccg aagcgcttca tgcgtagtga 540  
 ccacctgtcc cgtcacatca agaccacca gaataagaag ggtggatcc 589



<210> 29  
 <211> 196  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Veg3a/1 amino acid sequence

<400> 29  
 Val Pro Ile Pro Gly Lys Lys Lys Gln His Ile Cys His Ile Gln Gly  
           1                  5                  10                  15  
 Cys Gly Lys Val Tyr Gly Gln Ser Ser Asp Leu Gln Arg His Leu Arg  
                   20                  25                  30  
 Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys Gly  
           35                  40                  45  
 Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr His  
           50                  55                  60  
 Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met  
           65                  70                  75                  80  
 Arg Ser Asp Glu Leu Ser Arg His Ile Lys Thr His Gln Asn Lys Lys  
                   85                  90                  95  
 Asp Gly Gly Gly Ser Gly Lys Lys Lys Gln His Ile Cys His Ile Gln  
           100                  105                  110  
 Gly Cys Gly Lys Val Tyr Gly Thr Thr Ser Asn Leu Arg Arg His Leu  
           115                  120                  125  
 Arg Trp His Thr Gly Glu Arg Pro Phe Met Cys Thr Trp Ser Tyr Cys  
           130                  135                  140  
 Gly Lys Arg Phe Thr Arg Ser Ser Asn Leu Gln Arg His Lys Arg Thr  
           145                  150                  155                  160  
 His Thr Gly Glu Lys Lys Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe  
                   165                  170                  175  
 Met Arg Ser Asp His Leu Ser Arg His Ile Lys Thr His Gln Asn Lys  
           180                  185                  190  
 Lys Gly Gly Ser  
           195

<210> 30  
 <211> 42  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Veg3a/1  
 target site 1

<400> 30  
 agcgagcggg gaggatcgcg gaggcttggg gcagccgggt ag 42

<210> 31  
 <211> 42  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Veg3a/1  
 target site 2

<400> 31  
 tcgcccctcc tagcgctcc gaaccccgtc ggcccatctc gc 42

<210> 32  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: VEGF forward  
 primer

<400> 32  
 ctggtagcgg ggaggatcg 19

<210> 33  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: VEGF reverse  
 primer

<400> 33  
 gccacgacct ccgagctac 19

<210> 34  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: VEGF probe

<400> 34  
 ctaccgggct gcccgaagcc tc 22

<210> 35  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: GAPDH forward primer  
  
 <400> 35  
 ccttttgcag accacagtcc a 21  
  
 <210> 36  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: GAPDH reverse primer  
  
 <400> 36  
 gcagggatga tgttctggag a 21  
  
 <210> 37  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: GAPDH probe  
  
 <400> 37  
 cactgccacc cagaagactg tgg 23  
  
 <210> 38  
 <211> 32  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: ISWI primer 1  
  
 <400> 38  
 cgatcggatc ctccaaaaca gatacagctg cc 32  
  
 <210> 39  
 <211> 77  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Description of Artificial Sequence: ISWI primer 2

<400> 39  
gatcgctctt agactcgaga agcttacttg tcacgtcgtt ccttgtagtc gctgcccttc 60  
ttcttctttt tcgagtt 77

<210> 40  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Epo2c target  
site

<400> 40  
ggtgaggagt 10

<210> 41  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Epo2c  
recognition helix F1

<400> 41  
Arg Ser Asp Asn Ala Leu Arg  
1 5

<210> 42  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Epo2c  
recognition helix F2

<400> 42  
Arg Ser Asp Asn Leu Ala Arg  
1 5

<210> 43  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Epo2c  
recognition helix F3

<400> 43

Asp Ser Ser Lys Leu Ser Arg  
1 5

<210> 44  
<211> 10  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Epo3b target  
site

<400> 44  
gcggtggctc

10

<210> 45  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Epo3b  
recognition helix F1

<400> 45  
Gln Ser Ser Asp Leu Thr Arg  
1 5

<210> 46  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Epo3b  
recognition helix F2

<400> 46  
Arg Ser Asp Ala Leu Ser Arg  
1 5

<210> 47  
<211> 7  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Epo3b  
recognition helix F3

<400> 47

Arg Ser Asp Glu Arg Lys Arg  
1 5

<210> 48  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: SRC1 primer 1

<400> 48  
ggatccggcc accgcggccg catggatcca tgtaatacaa acccaacc 48

<210> 49  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: SRC1 primer 2

<400> 49  
atgaattcgc ggccgccctg ggttccatct gcttctgttt tgag 44